

PHOENIX BASIN #7
FCD GAGE ID# 4853

STATION DESCRIPTION

LOCATION – The dam is located about 1/2 mile south of the intersection of Thunderbird Road and Central Avenue. The gage is located at the principal outlet of the dam. Latitude N 33° 36' 04.1", Longitude W 112° 04' 21.4". Located in the SW1/4 NE1/4 SE1/4 S17 T3N R3E in the Sunnyslope 7.5-minute quadrangle.

ESTABLISHMENT – The gage was established on December 19, 2001.

DRAINAGE AREA – 0.55 mi²

GAGE – The gage is a pressure transducer type instrument located at the outlet from the dam pool. The orifice is at elevation 0.17 feet gage height, or 1,369.17 feet M.S.L., levels of May 12, 2009.

There is one staff gage at this location at the outlet. It has a range of 4 to 23 feet gage height.

There are no crest gages at this location.

ZERO GAGE HEIGHT - Zero is defined as the invert of the inlet, elevation 1,369.00 feet M.S.L.

HISTORY – No history at this location prior to gage installation. Dam was constructed in 1978. Dam modifications were done in 2009. A staff gage was added since the modifications were done.

REFERENCE MARKS –

RP-1 is a marked 'X' on the northeast end of the wingwall at the outlet. Elevation 3.93 feet gage height, levels of July 20, 2006.

RP-2 is the concrete bottom directly in front of the outlet invert on the pool side of the structure. Elevation -0.11 feet gage height, levels of July 20, 2006.

CHANNEL AND CONTROL – The primary outlet from the dam is a reinforced concrete pipe culvert. The culvert length is 160 feet. The auxiliary spillway for the dam is located to the southeast of the principal outlet.

PRIMARY / AUXILIARY OUTLET –

The primary outlet is a 27-inch diameter concrete culvert pipe, fitted with a metal plate with an 18 inch by 18 inch opening. The invert of the inlet is at 0.00 feet gage height, or 1,369.00 feet M.S.L. The invert of the outlet is at –1.60 feet gage height, or 1,367.40 feet M.S.L. The culvert length is 160 feet. Flow begins through the culvert at 0.00 feet gage height through a square orifice covering the culvert pipe.

The auxiliary spillway is located to the west of the principal outlet. The bottom width of the spillway is 105 feet. The minimum spillway crest is at about 22.4 feet gage height, or 1,391.40 feet M.S.L., levels of July 20, 2006.

The minimum top of the dam elevation is at about 29.0 feet gage height, or about 1,398.00 feet M.S.L., levels of July 20, 2006.

RATING – The current discharge rating is Rating #1. The rating was developed using HY8 culvert analysis for principal outlet flows and the weir equation for a broad-crested weir for spillway analysis.

The current capacity rating is Rating #1. Rating #1 was taken from the As-Built design plans.

DISCHARGE MEASUREMENTS – Direct measurements could be taken in the outlet wash/channel below the dam.

POINT OF ZERO FLOW – Flow begins through the primary outlet at 0.00 feet gage height. Flow begins through the auxiliary spillway at approximately 22.4 feet gage height.

FLOODS / SIGNIFICANT IMPOUNDMENTS –

REGULATION – None upstream of the dam. The dam regulates natural flows on from drainage from the slopes of North Mountain and Shaw Butte.

DIVERSIONS – None

ACCURACY – Fair

JUSTIFICATION – Monitor water levels behind dam for public safety.

UPDATE – August 18, 2011
 D E Gardner